



**Dr. Benjamin Müller**

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**Friend or Foe? - Do sponges promote or buffer against the microbialization of reefs?**

Current coral-algal-phase shifts have led to an increase in DOM production on many reefs. Algal-DOM selects for opportunistic microbes, which inefficiently use nutrients to sustain a high microbial biomass, the microbialization of reefs. Similar to microbes, many sponges feed on DOM, but also add certain DOM components and inorganic nutrients to the outflowing water. Sponges may provide microbes with DOM and inorganic nutrients and thereby fuel microbialization. However, can microbes utilize sponge-processed water and does it still support microbial growth? Thereto, we provided microbes with sponge-processed and unprocessed reef water. In dilution cultures we determined bacterial growth, change in bacterial community composition, and the uptake of DOM and inorganic nutrients. A novel untargeted metabolomics approach using HR LC-MS/MS further allowed to determine which DOM components were removed by sponges and microbes, respectively. Bioassays indicate that despite an enrichment with inorganic nitrogen and phosphate, bacterial growth on sponge-processed water was 4–5 times lower compared to reef water. Preliminary metabolomics data show that sponges and microbes removed similar DOM components and thus compete over DOM. Combined with the fact that sponges feed efficiently on microbes, we hypothesize that sponges may rather buffer against, than promote the microbialization of reefs.

Date: Thursday, 6 February 2020, 1:15 pm  
Venue: GEOMAR, Düsternbrooker Weg 20, Lecture Hall  
Host: Prof. Dr. Hentschel Humeida, Ute